H-811

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

N. KOFUJI et al

Serial No. 09/363,191 Group Art Unit: 1763

Filed: July 29, 1999 Examiner: L. Alejandro Mulero

For: DRY ETCHING APPARATUS AND A METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE

AMENDMENT

Commissioner of Patents
Washington, D.C. 20231

Sir:

In response to the Final Rejection mailed October 24, 2002, Applicants respond as follows. A Request for Continued Examination (RCE) accompanies this Amendment as well as a petition and fee for a two-month Extension of Time.

IN THE CLAIMS

1. (Presently Amended) A dry etching apparatus for treating a body comprising:

a chamber;

a holder in said chamber to receive a body to be treated;

means for introducing gas into said chamber;

means for exhausting said gas in said chamber;

a power supply of Ultra High Frequency;

an electromagnetic wave radiation antenna coupled to said power supply and installed in an atmosphere; and

a separation plate used as dielectric between said antenna and the inside of said chamber, wherein

said antenna is a ~~microstrip~~plate antenna ~~comprising a discoidal electrode~~.

2. (Presently Amended) A dry etching apparatus according to claim 1, wherein said separation plate is quartz disk.

3. Cancelled.

4. (Original) A dry etching apparatus according to claim 1,

wherein said means for introducing the gas has a shower plate, and

a distance between said shower plate and said holder is less than 100mm.

5. Cancelled.

6. (Original) A dry etching apparatus according to claim 1,

wherein said power supplies Ultra High Frequency of a frequency not less than 300MHz and not more than 1GHz.

7. Cancelled.

8. (Presently Amended) A dry etching apparatus according to claim 1,

wherein said separation plate separates said chamber and a second area where the pressure is higher than the pressure in the chamber,

said antenna is ~~a microstrip antenna~~ formed in said second area;

a coil outside of said chamber; and

wherein the ~~microstrip~~plate antenna resonates TMO1 mode.

9. (Presently Amended) A dry etching apparatus according to claim 1,

wherein said separation plate separates said chamber and a second area where the pressure is higher than the pressure in said chamber,

said antenna is ~~a microstrip antenna~~ formed in said second area;

a coil outside of said chamber; and

wherein a power supply provides Ultra High Frequency power to said ~~microstrip~~plate antenna in a form of a cone.

10-33. Cancelled.

34. (Presently Added) A dry etching apparatus for treating a semiconductor wafer comprising:

a chamber;

a holder in said chamber to receive a semiconductor wafer;

means for exhausting said gas in said chamber;

means for introducing gas into said chamber;

a power supply of Ultra High Frequency;

a ~~microstrip~~plate antenna for radiating an electromagnetic wave, coupled to said power supply and installed in an atmosphere~~, said microstrip antenna comprising a discoidal electrode~~; and

a separation plate used as a dielectric between said antenna and the inside of said chamber.

35. (Previously Added) A dry etching apparatus according to claim 34, wherein said separation plate is a quartz disk.

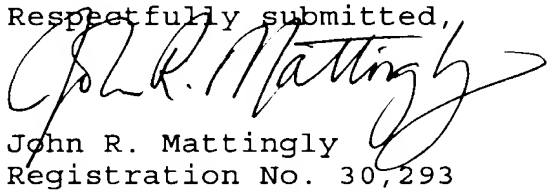
36. (Previously Added) A dry etching apparatus according to claim 34, wherein said power supply supplies power of an Ultra High Frequency band having a frequency not less than 300MHz and not more than 1GHz.

REMARKS

Claims 1 and 34 have been amended to change the description of the antenna to a plate antenna, which is supported by the drawings, for example Fig. 2. Accordingly, amended claims 1 and 34, as amended, distinguish the invention from the reference to Yokogawa because Yokogawa discloses micro strips formed in four pieces on a support plate made of quartz. The Yokogawa antennae has a dielectric plate 306' that is made of quartz and does not contribute or provide any antennae function except to support the microstrip antenna 308, which is divided into 4 parts that are connected by microstrip lines 307. Therefore, the Yokogawa et al reference does not disclose a plate antennae as claimed by Applicants.

Applicants have filed an RCE to obtain entry and of the foregoing amendments and examination of the pending claims. Accordingly, Applicants request reconsideration of the rejections under 35 U.S.C. §§ 102 and 103.

Respectfully submitted,



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Date: March 24, 2003